

REMARKS

Favorable reconsideration of this application, in light of the following discussion and in view of the present amendment, is respectfully requested.

Claims 29-41 are pending.

I. Rejection under 35 U.S.C. § 102

In the Office Action, at page 2, claims 29-34 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Publication No. 2004/0016995 to Kuo et al. This rejection is respectfully traversed because Kuo does not discuss or suggest that:

electrodes of said MEMS element and wiring patterns of said lid are electrically connected at a bonded part of said substrate and said lid, and

a sealing portion is provided between said MEMS element and said lid surrounding an outside of said bonded part,

as recited in independent claim 29.

Kuo discusses MEMS control chip integration in which a finished control-chip lid array 480 is aligned with a MEMS device array 380. A solder 510 seals the control-chip lid array 480 to the MEMS device array 380 in order to produce an integrated MEMS package array. The control-chip lid array 480 includes substrate elements 430, 460, 410 that are provided between the lid substrate 450 and the MEMS device array substrate 300. An MEMS device element 315 is provided between the arrays 480, 380.

First, Kuo discusses only that the two arrays 480 and 380 are soldered to each other at solder 510. Kuo does not discuss or suggest that electrodes of an MEMS element and wiring patterns of the lid are electrically connected at a bonded part of the substrate 300 and the lid 450, and that a sealing portion is provided between an MEMS element and the lid surrounding an outside of the bonded part. Kuo discusses that the arrays 480 and 380 are sealed to each other at the solder 510, but Kuo does not discuss or suggest that a sealing portion is provided between an MEMS element, which includes a micromachine component, i.e., component 315, and an electronic component, and the lid 450.

The Examiner alleges that the solder 510 is the bonded part that electrically connects element 350 and substrate elements 430/460/410. However, if the solder 510 is alleged to correspond with the bonded part, then there is not a sealing portion provided between the MEMS element (including component 315) and the lid 450 surrounding an outside of the bonded

part. Kuo specifically asserts in cited paragraph 0101 that solder 510 is employed to seal the arrays 480 and 380 to produce an integrated MEMS package array. Kuo further discusses that a seal ring, for example may be employed to seal the arrays 480, 380. Thus, the bonded part of Kuo is the solder 510 or seal, which is situated between the arrays 480, 380 to connect elements 410 and 350, for example. Kuo does not suggest that a sealing portion is provided between the MEMS element (including component 315) and the lid 450 surrounding an outside of the bonded part, particularly if the bonded part is asserted to be the solder 510. While Kuo discusses sealing the arrays 480, 380 together at the solder 510 (or another type of sealant), Kuo does not suggest that a sealing portion is provided between the MEMS element (including component 315) and the lid 450 and is outside the bonded part. The solder 510/seal cannot be both the bonded part and a sealing portion that surrounds the bonded part at which electrodes of the MEMS element and wiring patterns of the lid 450 are electrically connected.

While Kuo discusses sealing, Kuo specifically discusses that any means to seal the arrays 480, 380 together may be used in the same manner as that demonstrated by solder 510. Kuo thus does discuss a sealing portion, but not a sealing portion that surrounds an outside of a bonded part of the substrate 300 and the lid 450 at which electrodes of an MEMS element and wiring patterns of the lid 450 are electrically connected.

In contrast, as shown in Fig. 3, for example, the wiring patterns 26 of the lid 2 are electrically connected at a bonded part of the substrate 1 and the lid 2 to electrodes 31 of the MEMS element. Further, a sealing portion 32 is provided between the MEMS element (including microcantilever 4) and the lid 2 surrounding an outside of the bonded part between the wiring patterns and the electrodes 2. Kuo does not discuss or suggest that the solder 510 or a sealing portion surrounds an outside of a bonded part between elements 430/460/410 and substrate element 350, for example.

Further, although an outer solder ball is shown in Fig. 5, for example, the outer solder ball does not surround an outside of the bonded part, which the Examiner alleges corresponds to the solder 510 between elements 410 and 350. While the outer solder ball is on an outside with respect to solder 510, which connects elements 410 and 350, the outer solder ball does not surround an outside of the bonded part (alleged here to correspond with solder 510). In Fig. 5, the outer solder ball is spaced apart from solder 510 by a predetermined distance and thus cannot be construed to be a sealing portion surrounding an outside of the solder 510.

Therefore, as Kuo does not discuss or suggest that "electrodes of said MEMS element and wiring patterns of said lid are electrically connected at a bonded part of said substrate and

said lid, and a sealing portion is provided between said MEMS element and said lid surrounding an outside of said bonded part," as recited in independent claim 29, claim 29 patentably distinguishes over the reference relied upon. Accordingly, withdrawal of the § 102(e) rejection is respectfully requested.

Claims 30-34 depend either directly or indirectly from independent claim 29 and include all the features of claim 29, plus additional features that are not discussed or suggested by the reference relied upon. For example, claim 31 recites "in which said substrate and/or said lid further have a cavity at the side of said operating space." Therefore, claims 30-34 patentably distinguishes over the reference relied upon for at least the reasons noted above. Accordingly, withdrawal of the § 102(e) rejection is respectfully requested.

Conclusion

In accordance with the foregoing, claims 29-41 are pending and under consideration.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

By: 

Kari P. Footland
Registration No. 55,187

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1201 New York Avenue, N.W., 7th Floor
Washington, D.C. 20005
Telephone: (202) 434-1500
Facsimile: (202) 434-1501